



(43) International Publication Date
25 November 2004 (25.11.2004)

PCT

(10) International Publication Number
WO 2004/103051 A3

(51) International Patent Classification⁷: **H05K 13/02**

(21) International Application Number:
PCT/JP2004/006682

(22) International Filing Date: 12 May 2004 (12.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

2003-134237	13 May 2003 (13.05.2003)	JP
2003-331310	24 September 2003 (24.09.2003)	JP

(71) Applicant (for all designated States except US): MAT-SUSHITA ELECTRIC INDUSTRIAL CO., LTD.
[JP/JP]; 1006, Oaza Kadoma, Kadoma-shi, Osaka
571-8501 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ENDO, Tadashi. KIDO, Kazuo. UCHIDA, Hideki. OKUDA, Osamu. KAKITA, Nobuyuki.

(74) **Agents:** KAWAMIYA, Osamu et al.; Aoyama & Partners, IMP Building, 3-7, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka 540-0001 (JP).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

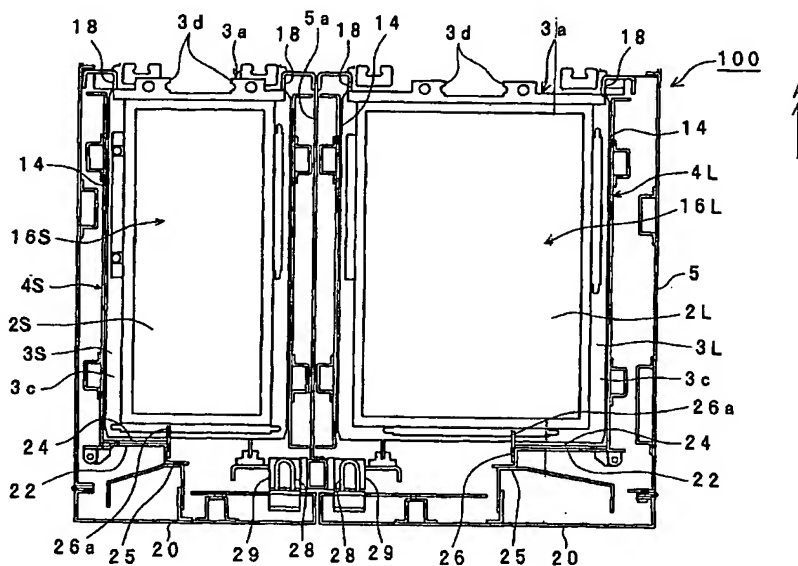
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report*

[Continued on next page]

(54) Title: ELECTRONIC COMPONENT FEEDER AND ELECTRONIC COMPONENT FEEDING METHOD



(S7) Abstract: There are provided a forward-side regulating member (18) for regulating the support positions of the pallets loaded in a magazine (4) on the forward side in a pallet feed direction (A), a rearward-side regulating member (24) that is movable along the direction, for regulating the support positions of the pallets regulated by the forward-side regulating member on, the rearward side in the direction, and a horizontal posture regulating member (26) that can be arranged between the pallets, for regulating the pallet support posture so as to maintain the roughly horizontal support posture of the pallets supported by one pair of the support sections by virtue of the arrangement.



(88) Date of publication of the international search report:
24 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

ional Application No
/JP2004/006682

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H05K13/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H05K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2001 326495 A (JUKI CORP) 22 November 2001 (2001-11-22) abstract; figures 1,3	1, 12, 13
Y	JP 2001 274592 A (YAMAGATA CASIO CO LTD) 5 October 2001 (2001-10-05) abstract; figure 6a	1, 12, 13
A	JP 11 068384 A (MATSUSHITA ELECTRIC IND CO LTD) 9 March 1999 (1999-03-09) abstract; figures 1-4	1-6
A	US 6 524 052 B1 (YAMAUCHI ET AL.) 25 February 2003 (2003-02-25) the whole document	1
A	US 2002/070570 A1 (BACHTHALER ET AL.) 13 June 2002 (2002-06-13) paragraph '0018!	19-21, 24

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

29 October 2004

Date of mailing of the international search report

05 NOV 2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Bolder, G

INTERNATIONAL SEARCH REPORT

national application No.
PCT/JP2004/006682

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-18

an electronic component feeder for loading a plurality of pallets comprising means to detect correct posture of the pallets

2. claims: 19-24

an electronic component feeding method in which the components are sucked with a pressure that is lower than a pressure capable of sucking a component feed tray

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
/JP2004/006682

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
JP 2001326495	A	22-11-2001	NONE		
JP 2001274592	A	05-10-2001	NONE		
JP 11068384	A	09-03-1999	NONE		
US 6524052	B1	25-02-2003	JP 3491557 B2		26-01-2004
			JP 2000307290 A		02-11-2000
US 2002070570	A1	13-06-2002	DE 10061756 A1		04-07-2002
			WO 0249411 A1		20-06-2002